

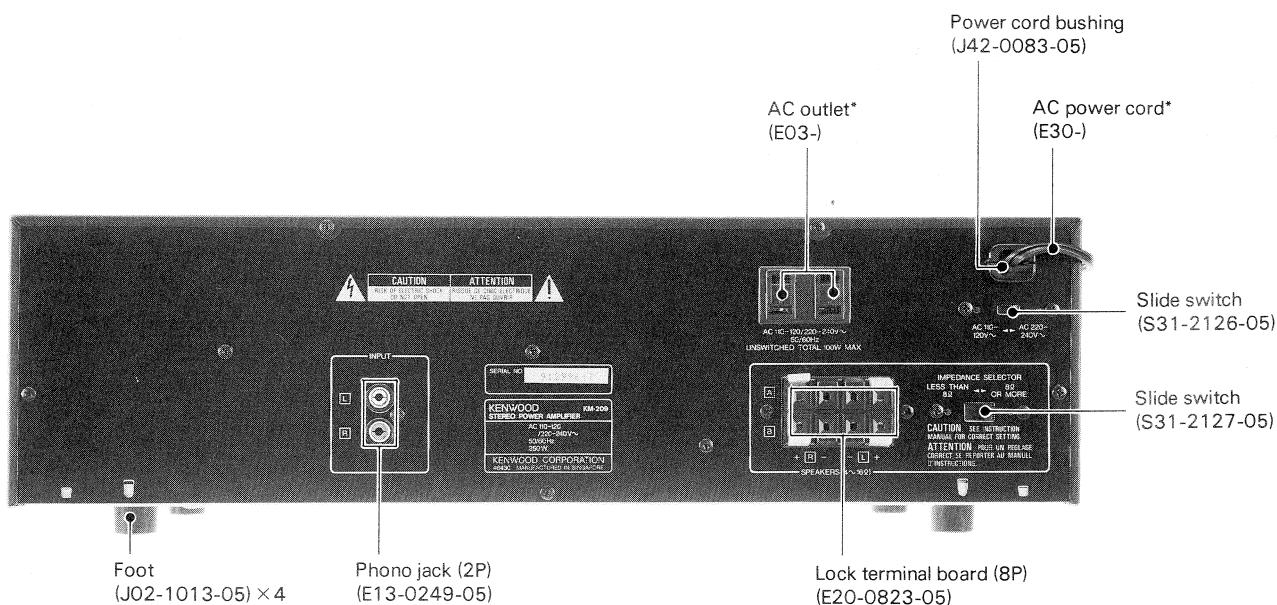
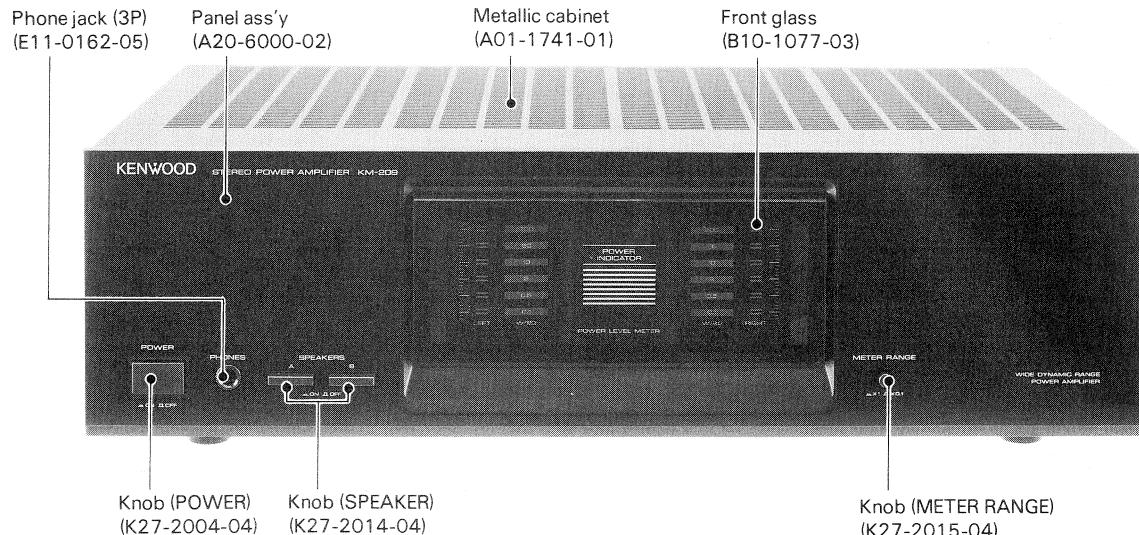
STEREO POWER AMPLIFIER

# KM-209

## SERVICE MANUAL

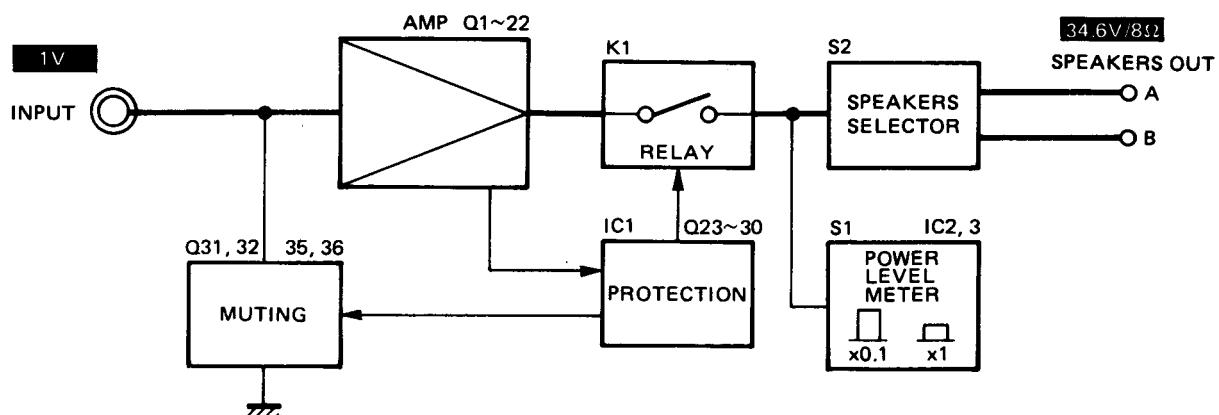
KENWOOD

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B51-4078-00(S)1950



## BLOCK DIAGRAM

## BLOCK LEVEL DIAGRAM



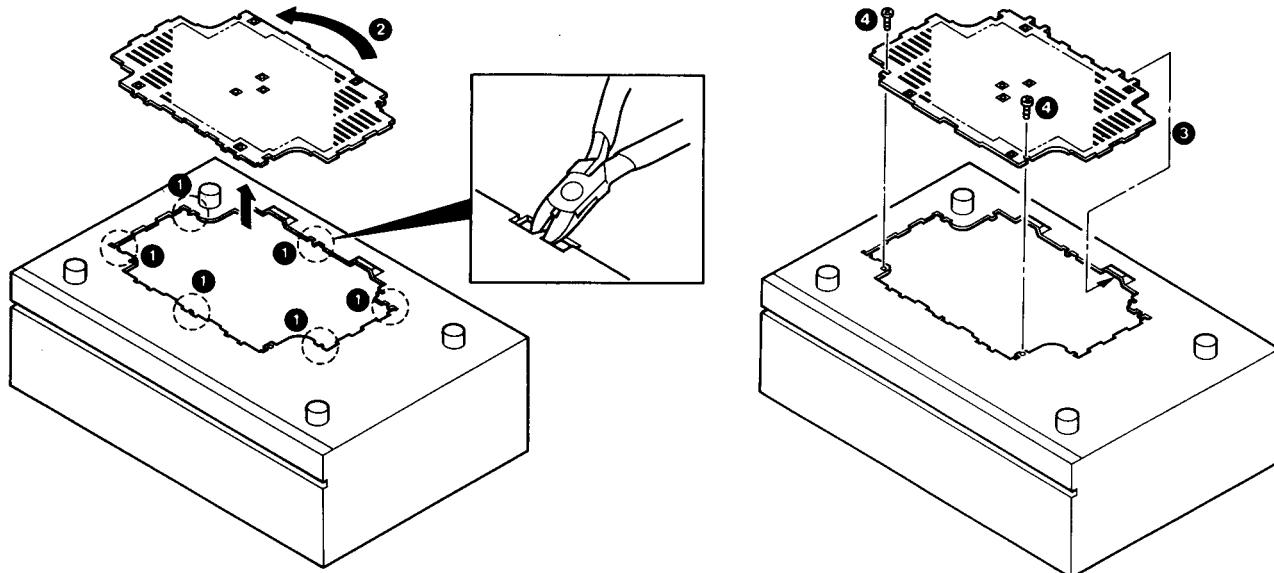
## DISASSEMBLY FOR REPAIR

## How to remove the repairing chassis

- Cut the 6 parts ① of the repairing chassis. Remove the repairing chassis from main chassis.

## After repair

- Turn the repairing chassis 180 degrees in the arrow direction ②.
- Insert the 2 claws ③ into main chassis.
- Lock to the main chassis by 2 screws (M3 × 6) ④.



# CIRCUIT DESCRIPTION

## CIRCUIT DESCRIPTION

### Description of Components

#### POWER AMPLIFIER UNIT (X07-2430-XX, X07-2460-XX)

Components	Application/Function	Operation/Condition/Compatibility
Q1 ~ 4	Initial stage differential amplifier	Low noise.
Q5 ~ 8	2nd stage differential amplifier	
Q9, 10	3rd stage amplifier	Class A cascade current amplifier.
Q11, 12	3rd stage amplifier	Class A cascade voltage amplifier.
Q13, 14	Bias temperature compensation	
Q15 ~ 18	Class B driver	
Q19 ~ 22	Power amplifier	
Q23 ~ 30	Current protection	
Q31, 32	Input muting	
Q33	Driver for realy driver IC	Current protection.
Q34	Constant voltage control	
Q35, 36	Muting driver	
Q37	AVR	For meter driver.
IC1	Relay driver IC	
IC2, 3	Meter driver	

# ADJUSTMENT/REGLAGE/ABGLEICH

## ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	IDLE CURRENT	-	Connect a DC voltmeter across CP1 (L) CP2 (R)	VOLUME: 0	VR1 (L) VR2 (R)	9~18mV	(a)

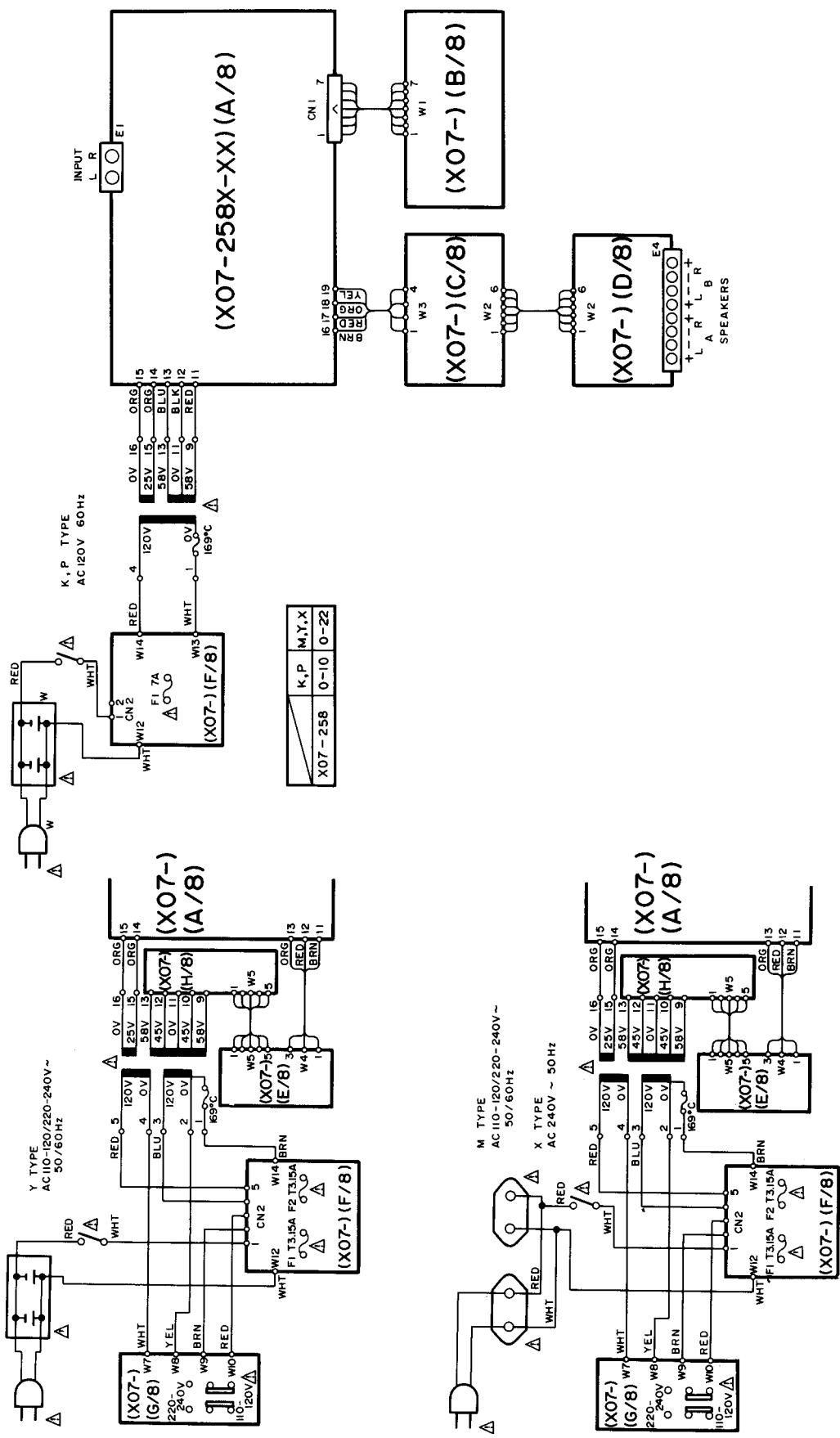
## REGLAGE

N°	ITEM	REGLAGE DE L' ENTRÉE	REGLAGE DE LA SORTIE	REGLAGE DE L' AMPLIFICATEUR	POINS L' ALIGNEMENT	ALIGNER POUR	FIG.
1	COURANT DE POLARISATION	-	Connecter un voltmètre de CC sur CP1 (G) CP2 (D)	VOLUME: 0	VR1 (G) VR2 (D)	9~18mV	(a)

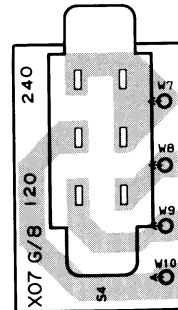
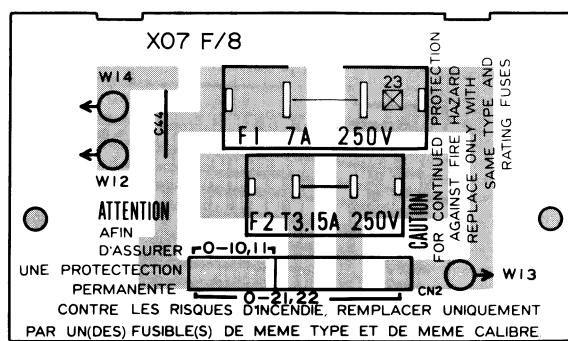
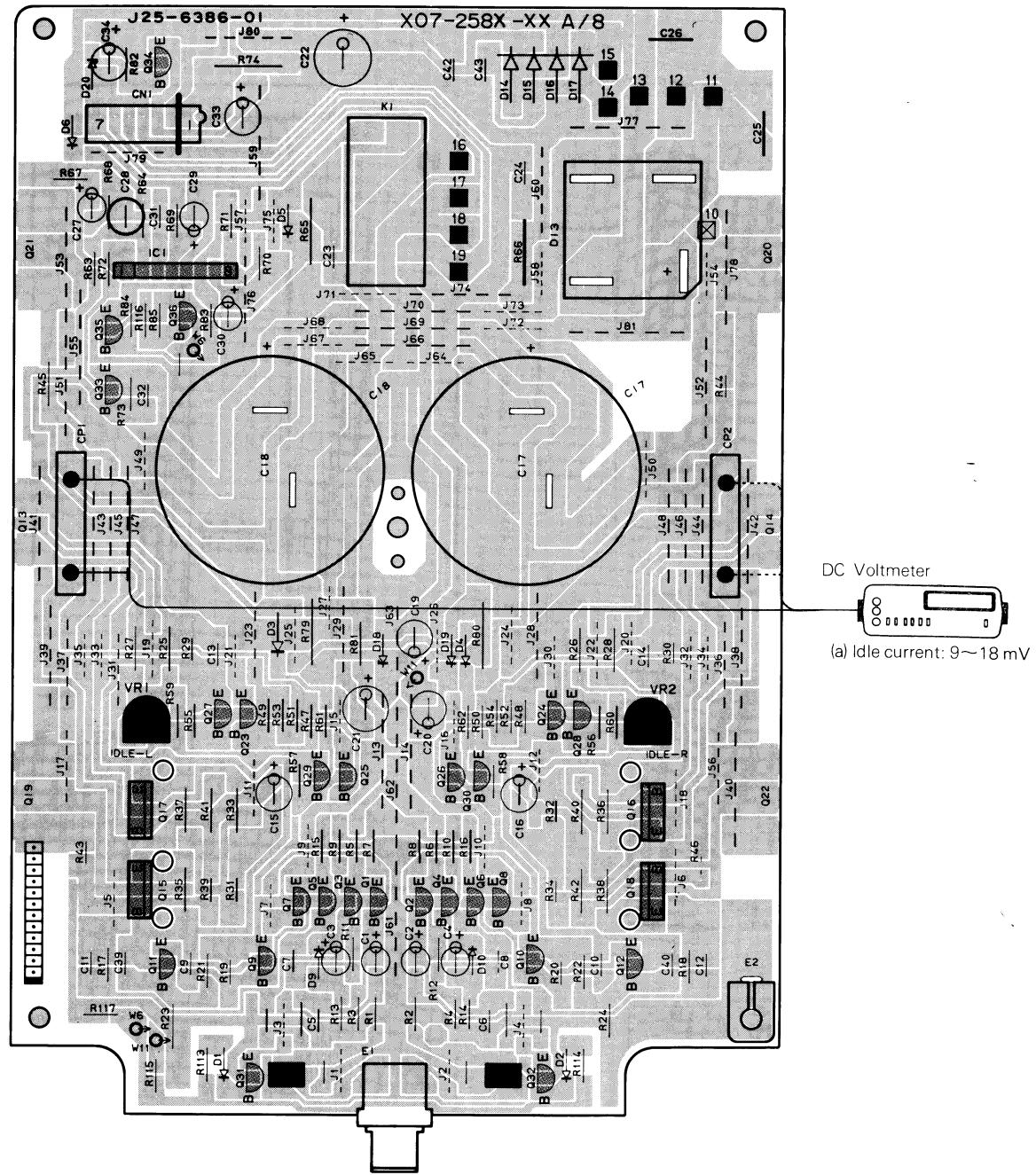
## ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VORSTARKER EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
1	LEERLAUFSTROM		Einen Gleichspannungsmesser über CP1 (L) CP2 (R) anschließen.	VOLUME: 0	VR1 (L) VR2 (R)	9~18mV	(a)

## WIRING DIAGRAM

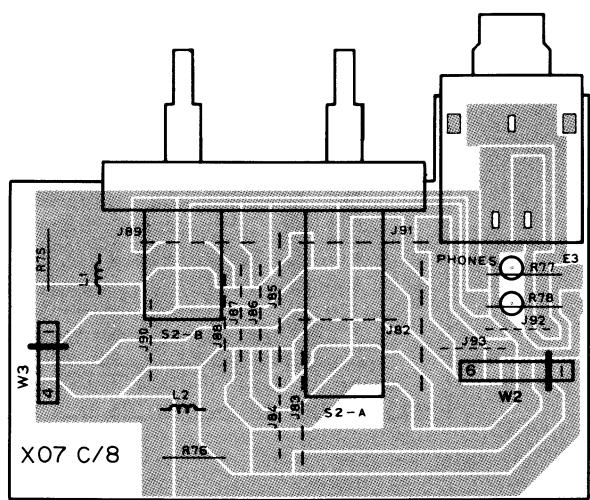
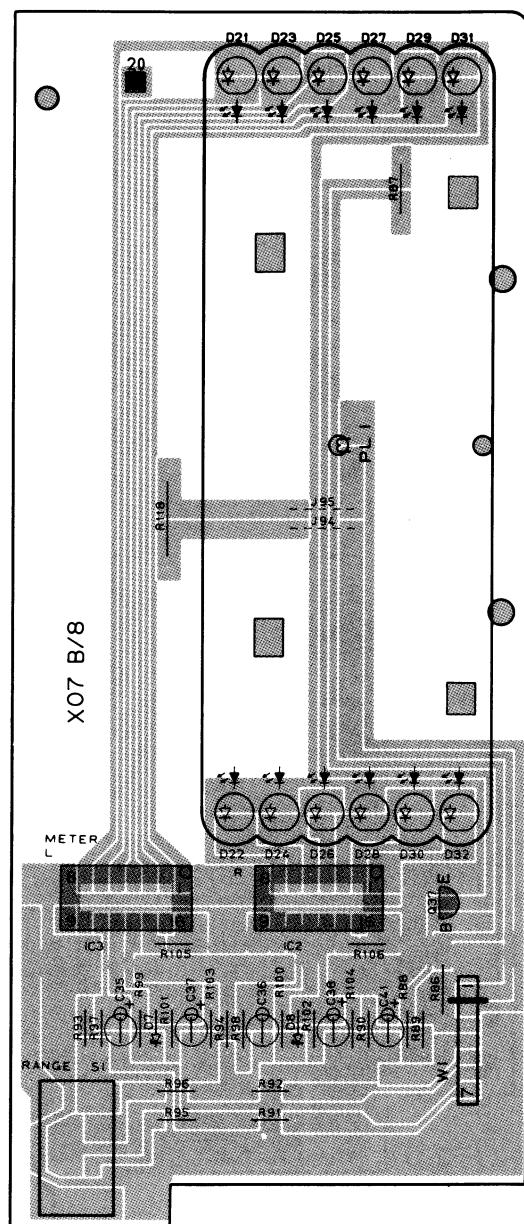
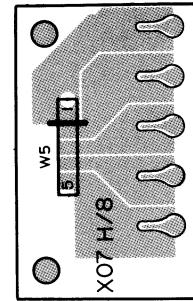
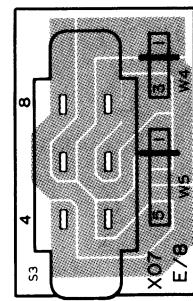
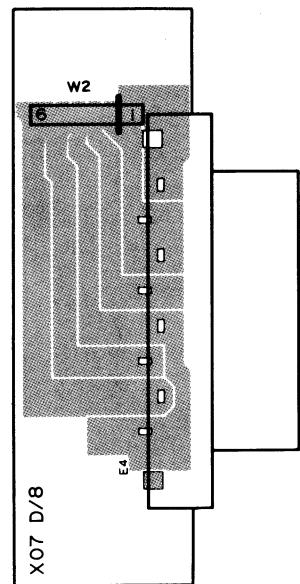


# **PC BOARD** (Component Side View)

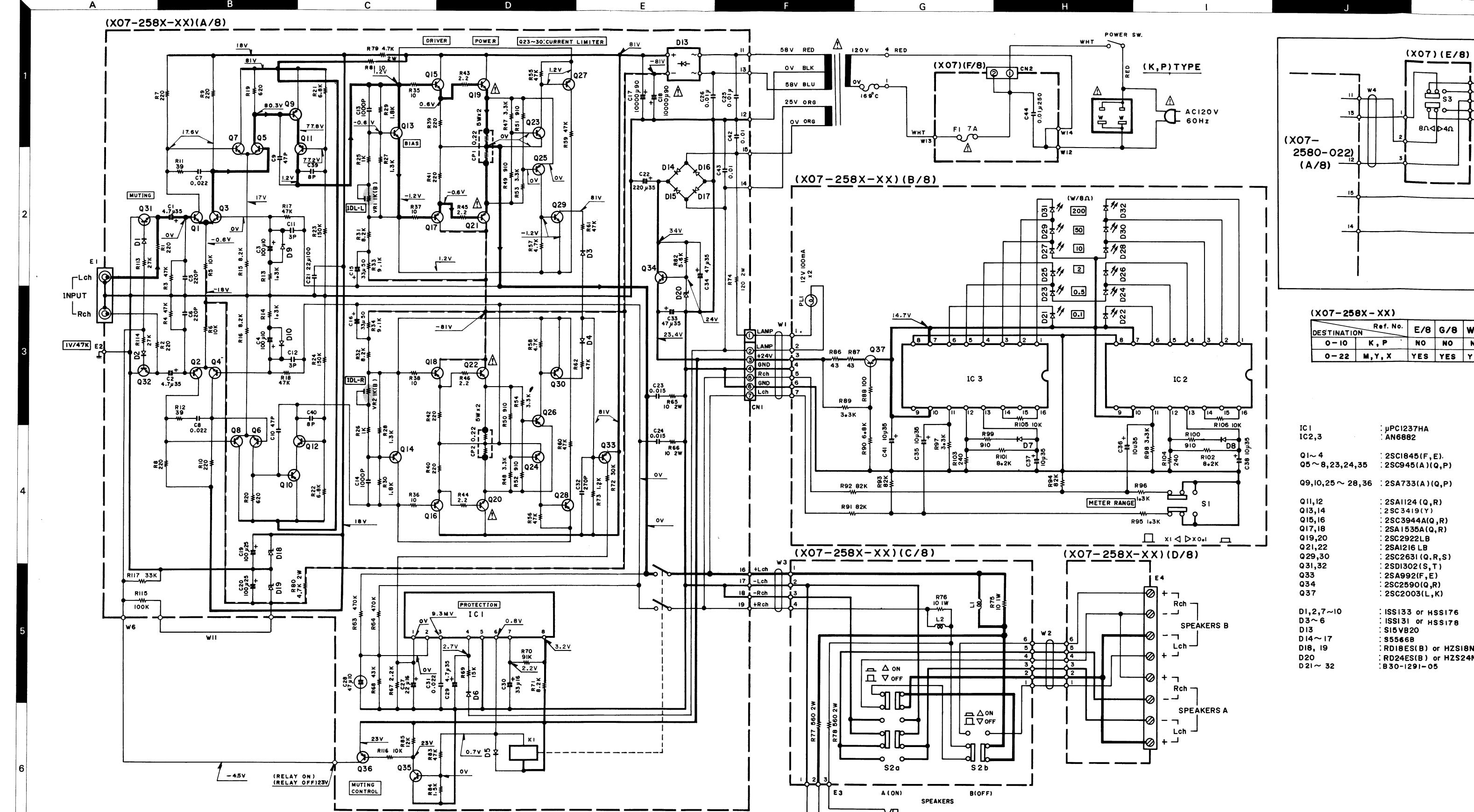


Refer to the schematic diagram for the values of resistors and capacitors.

# PC BOARD (Foil Side View)



Refer to the schematic diagram for the values of resistors and capacitors.

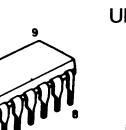
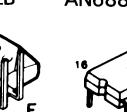
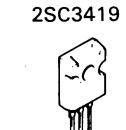
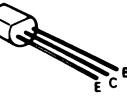


DESTINATION	Ref. No.	E/8	G/8	W
0~10	K, P	NO	NO	N
0~22	M, Y, X	YES	YES	YES

- IC1, IC2,3 : μPC1237HA, AN6882
- Q1~4 : 2SA1124 (Q,R)
- Q5~8,23,24,35 : 2SC1845(F,E), 2SC945(A,P)
- Q9,10,25~28,36 : 2SA733(A,Q,P)
- Q11,12 : 2SA1124 (Q,R)
- Q13,14 : 2SC3419(Y)
- Q15,16 : 2SC3944A(Q,R)
- Q17,18 : 2SA1535A(Q,R)
- Q19,20 : 2SC2922LB
- Q21,22 : 2SA1216 LB
- Q29,30 : 2SD1302(S,T)
- Q31,32 : 2SA992(F,E)
- Q33,34 : 2SC2590(Q,R)
- Q37 : 2SC2003(L,K)
- D1,2,7~10 : ISS133 or HSS176
- D3~6 : ISS131 or HSS178
- D13 : S15VB20
- D14~17 : S5566B
- D18,19 : RD24ES(B) or HZS18N
- D20 : RD24ES(B) or HZS24N
- D21~32 : B30-1291-05

SIGNAL LINE  
GND LINE  
+B LINE  
-B LINE

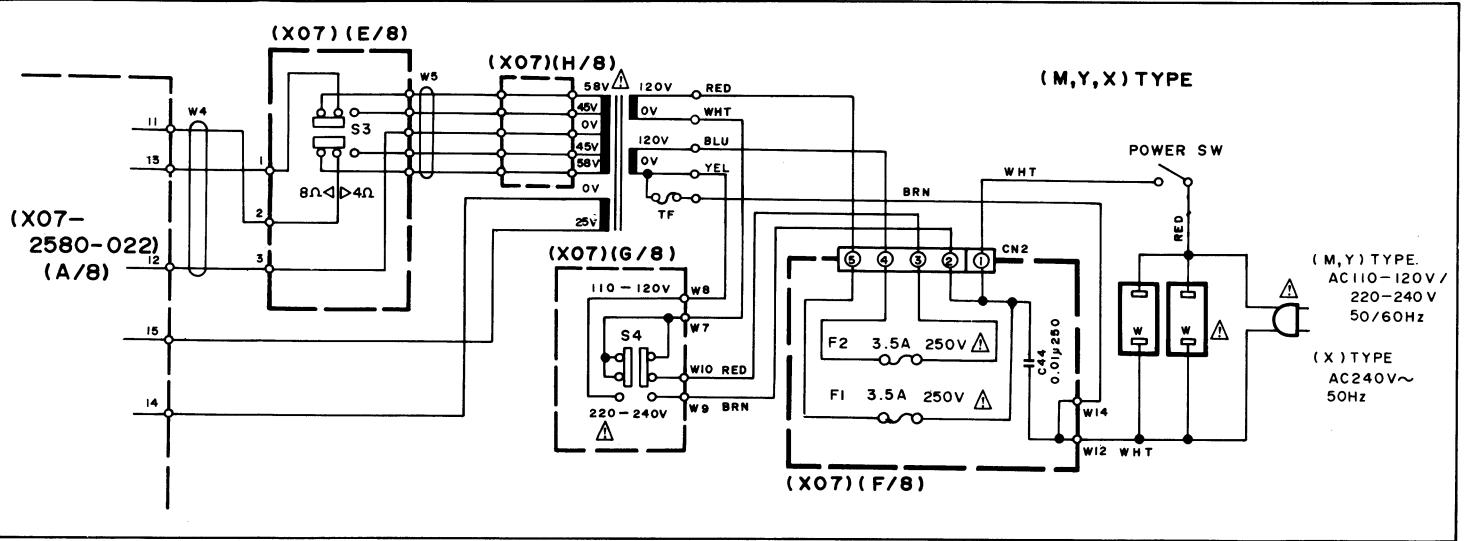
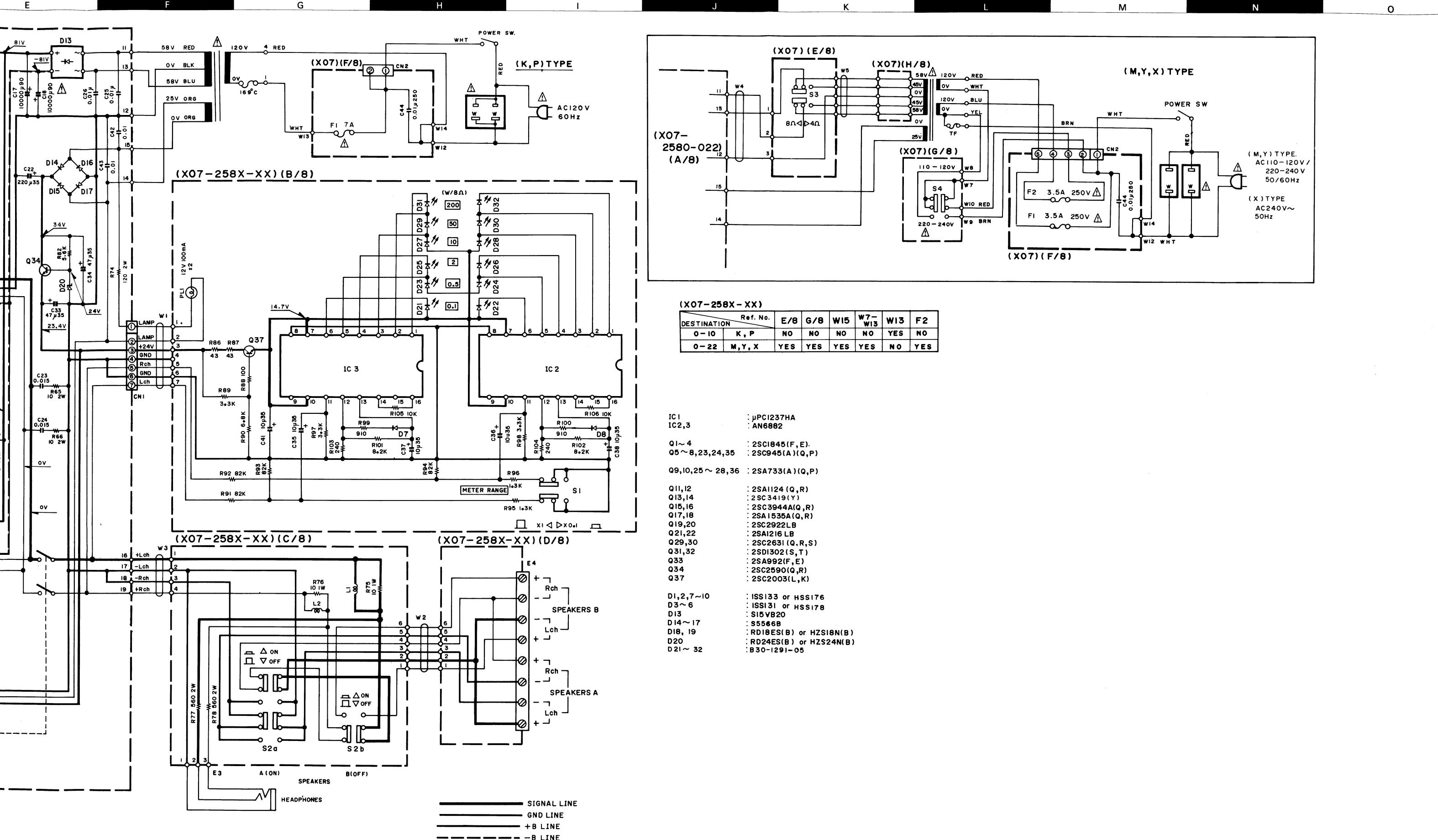
2SA1124  
2SA733 (A)  
2SA992  
2SC1845  
2SC2003  
2SC2631  
2SC945 (A)  
2SD1302



**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$  Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées avec une haute impédance sans signal d'entrée. Les valeurs peuvent varier légèrement du fait des variations inhérentes et aux instruments de mesure individuels.



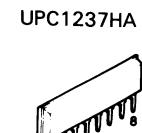
DESTINATION	Ref. No.	E/8	G/8	W15	W7-W13	W13	F2
0-10	K, P	NO	NO	NO	NO	YES	NO
0-22	M, Y, X	YES	YES	YES	YES	NO	YES

IC1 :  $\mu$ PC1237HA  
IC2,3 : AN6882  
Q1~4 : 2SC1845(F,E)  
Q5~8,23,24,35 : 2SC945(A)(Q,P)  
Q9,10,25~28,36 : 2SA733(A)(Q,P)  
Q11,12 : 2SA1124(Q,R)  
Q13,14 : 2SC3419(Y)  
Q15,16 : 2SC3944A(Q,R)  
Q17,18 : 2SA1535A(Q,R)  
Q19,20 : 2SC2922LB  
Q21,22 : 2SA1216LB  
Q29,30 : 2SC2631(Q,R,S)  
Q31,32 : 2SD1302(S,T)  
Q33 : 2SA992(F,E)  
Q34 : 2SC2590(Q,R)  
Q37 : 2SC2003(L,K)  
  
DI,2,7~10 : ISSI33 or HSSI76  
D3~6 : ISSI31 or HSSI78  
D13 : S15VB20  
D14~17 : S5566B  
D18, 19 : RD18ES(B) or HZS18N(B)  
D20 : RD24ES(B) or HZS24N(B)  
D21~32 : B30-1291-05

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser ohne Eingangssignal gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

Y084070-10

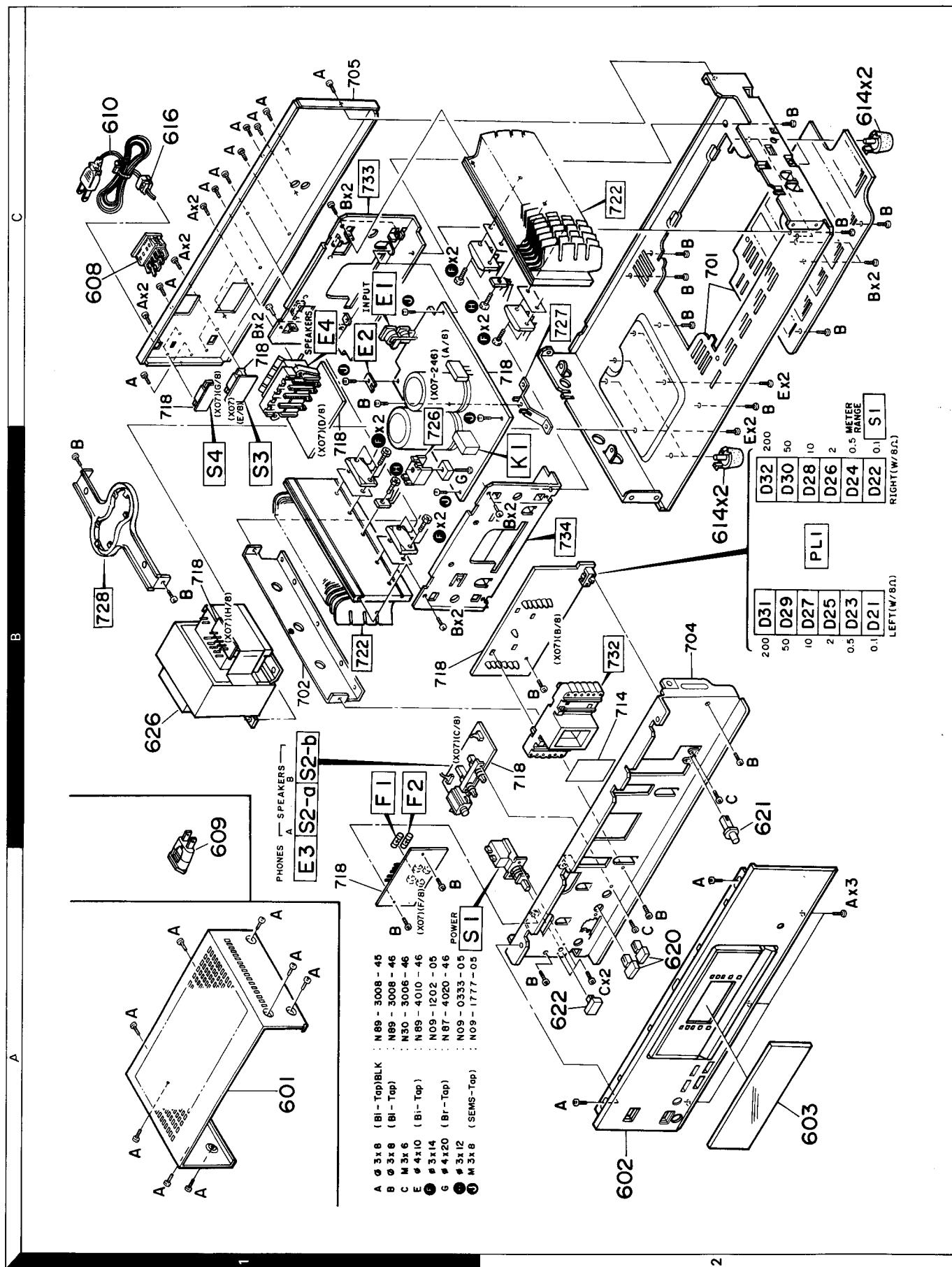
**KM-209**  
**KENWOOD**



UPC1237HA

# KM-209

## EXPLODED VIEW



## PARTS LIST

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位 置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規 格	Desti- nation 仕 向	Re- marks 備考
<b>KM-209</b>						
601	1A	*	A01-1741-01	METALLIC CABINET		
602	2A	*	A20-6000-02	PANEL ASSY		
603	2A	*	B10-1077-03	FRONT GLASS		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	Y	
-			B46-0095-03	WARRANTY CARD	Y	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0121-03	WARRANTY CARD	P	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	Y	
-		*	B60-0018-00	INSTRUCTION MANUAL (ENGLISH)	PM	
-		*	B60-0019-00	INSTRUCTION MANUAL (FRENCH)	M	
-		*	B60-0020-00	INSTRUCTION MANUAL (S,A,C)		
⚠ 608	1C		E03-0055-05	AC OUTLET	M	
⚠ 608	1C		E03-0072-05	AC OUTLET	KPY	
⚠ 608	1C	*	E03-0114-05	AC OUTLET	X	
⚠ 609	1A	*	E03-0115-05	AC PULG ADAPTOR	M	
⚠ 610	1C		E30-0459-05	AC POWER CORD	M	
⚠ 610	1C		E30-0812-05	AC POWER CORD	Y	
⚠ 610	1C		E30-1341-05	AC POWER CORD	X	
⚠ 610	1C		E30-2209-05	AC POWER CORD	KP	
-		*	H01-8759-04	ITEM CARTON CASE		
-		*	H10-3979-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0223-04	PROTECTION BAG (750X350X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
⚠ 614	2B, 2C		J02-1013-05	FOOT		
⚠ 616	1C		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
620	2A	*	K27-2014-04	KNOB (BUTTON) SPEAKER A,B		
621	2B	*	K27-2015-04	KNOB (BUTTON) METER RANGE		
622	2A		K27-2004-04	KNOB (BUTTON) POWER		
626	1B		L01-7901-05	POWER TRANSFORMER	KP	
626	1B		L01-7905-05	POWER TRANSFORMER	YMX	
A	1A, 2A		N89-3008-45	BINDING HEAD TAPTITE SCREW		
B	1B		N89-3008-46	BINDING HEAD TAPTITE SCREW		
C	2A, 2B		N30-3006-46	PAN HEAD MACHINE SCREW		
E	1B		N89-4010-46	BINDING HEAD TAPTITE SCREW		
S1	1A, 2A		S40-1094-05	PUSH SWITCH (POWER TYPE)		
<b>MAIN AMPLIFIER UNIT (X07-2580-11:K, P, O-22: Y, M, X)</b>						
D21 -32	2B	*	B30-1291-05	LED LAMP	(12V, 0.1A)	
PL1	2B		B30-1140-05			
C1 , 2			CE04LW1V4R7M	ELECTRO	4.7UF	35WV
C3 , 4			CE04LW1A101M	ELECTRO	100UF	10WV
C5 , 6			CC45FSL1H221J	CERAMIC	220PF	J
C7 , 8			CF92FV1H223J	MF	0.022UF	J
C9 , 10			CC45FSL1H470J	CERAMIC	47PF	J
C11 , 12			CC45FSL1H030C	CERAMIC	3.0PF	C
C13 , 14			CF92FV1H102J	MF	1000PF	J
C15 , 16		*	CE04LW1H330M	ELECTRO	33UF	50WV
C17 , 18			C90-1394-05	ELECTRO	10000UF	90WV
C19 , 20			CE04LW1E101M	ELECTRO	100UF	25WV

E: Scandinavia &amp; Europe K: USA

P: Canada

Y: PX(Far East, Hawaii) T: England

M: Other Areas

Y: AAFES(Europe)

X: Australia

⚠ indicates safety critical components.

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C21		*	CE04LW2A220M	ELECTRO	22UF	100WV		
C22			CE04LW1V221M	ELECTRO	220UF	35WV		
C23 , 24			CF92FV1H153J	MF	0.015UF	J		
C25 , 26			CK45FE2H103P	CERAMIC	0.010UF	P		
C27			CE04LW1C220M	ELECTRO	22UF	16WV		
C28			C90-1334-05	NP-ELEC	47UF	10WV		
C29			CE04LW1V4R7M	ELECTRO	4.7UF	35WV		
C30			CE04LW1C330M	ELECTRO	33UF	16WV		
C31			CF92FV1H223J	MF	0.022UF	J		
C32			CC45FSL1H271J	CERAMIC	270PF	J		
C33 , 34		*	CE04LW1V470M	ELECTRO	47UF	35WV		
C35 -38			CE04LW1V100M	ELECTRO	10UF	35WV		
C39 , 40			CC45FSL1H080D	CERAMIC	8.0PF	D		
C41			CE04LW1V100M	ELECTRO	10UF	35WV		
C42 , 43			CK45FF1H103Z	CERAMIC	0.010UF	Z		
⚠ C44			C91-0971-05	FILM	0.01UF	250WV	KPYM	
B1	1C		E13-0249-05	PHONE JACK	(2P)			
B2	1C		E23-0077-05	TERMINAL			YM	
B2	1C		E23-0149-05	TERMINAL				
B3	1A		E11-0162-05	PHONE JACK	(3P)			
B4	1C		E20-0823-05	LOCK TERMINAL BOARD(8P)				
⚠ F1	1C		F05-3522-05	FUSE (SEMKO)	(250V T3.5A)		X	
⚠ F1	1C		F05-7026-05	FUSE (UL)	(250V 7A)		KP	
⚠ F1 , F2	1C		F05-3121-05	FUSE	(250V 3.5A)		YMXM	
630	1A, 1B		J13-0041-05	FUSE CLIP			KPYM	
L1 , 2			L39-0085-05	PHASE-COMPENSATION COIL				
B	1B		N89-3008-46	BINDING HEAD TAPTITE SCREW				
F	2B, 3C		N09-1202-05	TAPPING SCREW (3X14)				
G	2B		N87-4020-46	BRAZIER HEAD TAPTITE SCREW				
H	2B, 3C		N09-0333-05	TAPPING SCREW (3X12)				
J	1B		N09-1777-05	SEMS (TAPTITE SCREW)				
CP1 , 2			R90-0187-05	MULTI-COMP	0.22X2	K 5W		
R19 , 20			RD14GB2E621J	FL-PROOF RD	620	J 1/4W		
R25 , 26			RD14GB2E102J	FL-PROOF RD	1.0K	J 1/4W		
R27 , 28			RD14GB2E132J	FL-PROOF RD	1.3K	J 1/4W		
R29 , 30			RD14GB2E182J	FL-PROOF RD	1.8K	J 1/4W		
R31 , 32			RD14GB2E822J	FL-PROOF RD	8.2K	J 1/4W		
R33 , 34			RD14GB2E912J	FL-PROOF RD	9.1K	J 1/4W		
R35 -38			RD14GB2E100J	FL-PROOF RD	10	J 1/4W		
R39 -42			RD14GB2E221J	FL-PROOF RD	220	J 1/4W		
R43 -46			RD14GB2E2R2J	FL-PROOF RD	2.2	J 1/4W		
R65			RS14KB3D100J	FL-PROOF RS	10	J 2W		
R66			RS14KB3D100J	FL-PROOF RS	10	J 2W		
R74			RS14KB3D121J	FL-PROOF RS	120	J 2W		
R75 , 76			RS14KB3A100J	FL-PROOF RS	10	J 1W		
R77 , 78			RS14KB3D561J	FL-PROOF RS	560	J 2W		
R79 , 80			RS14KB3D472J	FL-PROOF RS	4.7K	J 2W		
R81			RD14GB2E100J	FL-PROOF RD	10	J 1/4W		
VR1 , 2			R12-1083-05	TRIM POT.	1K			
K1	2B		S51-2078-05	MAGNETIC RELAY				
S1	1B		S40-2351-05	PUSH SWITCH				
S2	1B		S42-2163-05	MULTIPLE PUSH SWITCH				

E: Scandinavia &amp; Europe K: USA

P: Canada

Y: PX(Far East, Hawaii) T: England

M: Other Areas

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S3 S4	2B		S31-2127-05 S31-2126-05	SLIDE SWITCH (POWER TYPE) SLIDE SWITCH (POWER TYPE)	YMX YM	
D1 ,2 D1 ,2 D3 -6 D3 -6 D7 -10			1SS133 1SS176 1SS131 1SS178 1SS133	DIODE DIODE DIODE DIODE DIODE		
D7 -10 D13 D14 -17 D18 ,19 D18 ,19			1SS176 S15VB20 S5566B HZS18N(B) RD18ES(B)	DIODE DIODE DIODE ZENER DIODE ZENER DIODE		
D20 D20 IC1 IC2 ,3 Q1 -4			HZS24N(B) RD24ES(B) UPC1237HA AN6882 2SC1845(F,B)	ZENER DIODE ZENER DIODE IC(POWER AMP) IC(7PT LED LEVEL METER DRIVER) TRANSISTOR		
Q5 -8 Q9 ,10 Q11 ,12 Q13 ,14 Q15 ,16			2SC945(A)(Q,P) 2SA733(A)(Q,P) 2SA1124(Q,R) 2SC3419(Y) 2SC3944A(Q,R)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q17 ,18 Q19 ,20 Q21 ,22 Q23 ,24 Q25 -28			2SA1535A(Q,R) 2SC2922LB 2SA1216LB 2SC945(A)(Q,P) 2SA733(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q29 ,30 Q31 ,32 Q33 Q34 Q35			2SC2631(Q,R,S) 2SD1302(S,T) 2SA992(F,E) 2SC2590(Q,R) 2SC945(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q36 Q37			2SA733(A)(Q,P) 2SC2003(L,K)	TRANSISTOR TRANSISTOR		

E: Scandinavia &amp; Europe K: USA P: Canada

Y: PX(Far East, Hawaii) T: England M: Other Areas

Y: AAFES(Europe) X: Australia

⚠ indicates safety critical components.

# SPECIFICATIONS

## Rated Power Output

**150 watts per channel minimum RMS, both channels driven, at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.03% total harmonic distortion.**

### Both channels driven

(8 ohms, 1 kHz) ..... 155 W + 155 W

### Music Power

(8 ohms) ..... 310 W + 310 W

### Total Harmonic Distortion

20 Hz to 20,000 Hz ..... 0.015% at 1/2 rated power into 8 ohms

1 kHz ..... 0.002% at 1/2 rated power into 8 ohms

### Inter Modulation Distortion

(60 Hz:7 kHz = 4:1) ..... 0.002% at rated power into 8 ohms

### Frequency Response

5 Hz to 200 kHz, +0 dB, -3 dB

### Power Bandwidth

(0.2 % T.H.D., 8 ohms) ..... 10 Hz to 50 kHz

### Signal-to-Noise Ratio (IHF-A)

..... 120 dB (MAIN IN)

### Damping Factor

..... More than 35 at 50 Hz

## General

**Power Consumption** ..... 5 A (USA and Canada)

350 W (Others)

**AC Outlets** ..... Switched 2, Unswitched 1

(Except some area)

**Dimensions** ..... W 440 mm (17-5/16")

H 133 mm (5-1/4")

D 269 mm (10-9/16")

**Weight (Net)** ..... 8.8 kg (19.4 lb)

### Note :

We follow a policy of continuous advancements in developments.  
For this reason specifications may be changed without notice.

### Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the U.S.A. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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